

preludesys

Power BI Insurance Dashboard Accelerator



Lot of time required to perform data analysis & build the predictive data models

Delays in time to market

Collaborating and sharing the reports with-in teams

Siloed Reporting Infrastructure
(Excel, SSRS, Power BI, etc.,)

Real-time data synchronization

Manual report execution, which might lead to some data errors.

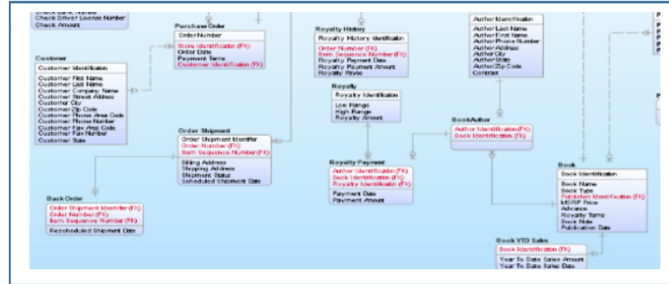
No Standardized Reports / KPIs

Business Pain Points / Challenges



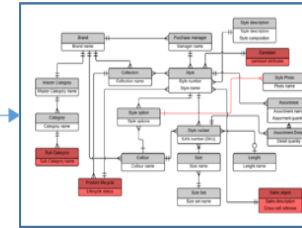
Industrial Insights Accelerator

Customer Data Model



Mapping

Pre-Build Data Model



Pre-Build Visualizations (Industry Specific)



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IMPLICIT KNOWLEDGE

Highlights:

- ✓ Pre-Build Data Model & Visualizations were developed in reference to extensive research and analysis through retail experts.
- ✓ Quick to plug-in the Customer Data Model with Pre-Build Data Model through mapping key dimensions and measures (metrics) using Power BI Dataflows.
- ✓ Equipped to enhance data model to address customer specific reporting demands.
- ✓ Inbuilt accurate Claim Fraudulence detection analytics using 8 proven data science algorithms like Gradient Boost, Random Forest and inbuilt sampling techniques.
- ✓ Easy to configure Report themes.

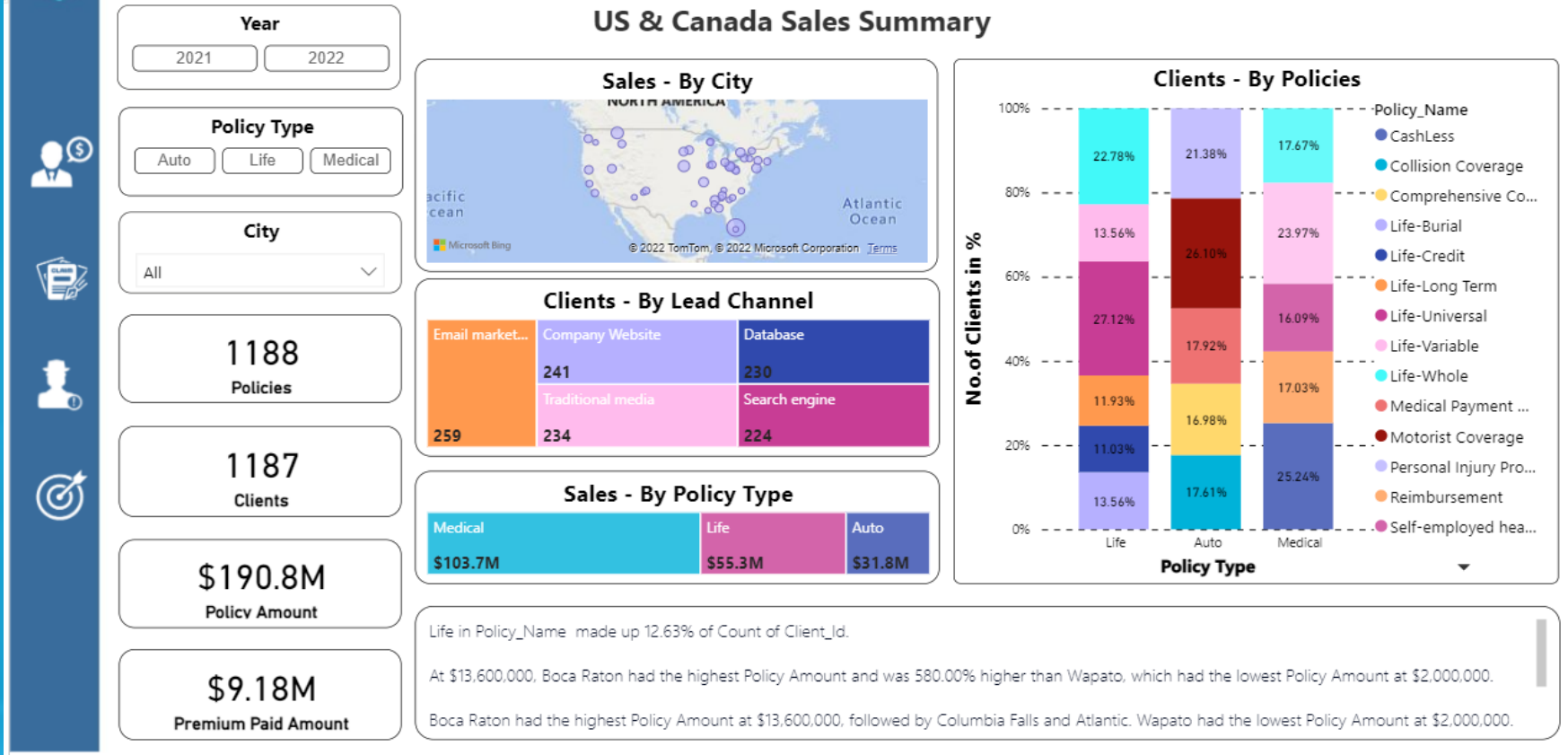
- ✓ Centralized with standard reporting structure for all the insurance functions with a functional coverage of **45-60%***
- ✓ Quick to switch from Excel usage to Power BI
- ✓ Swift approach to go-to-market, for new Power BI Users
- ✓ Extensive Collaborating and sharing features of Power BI
- ✓ Highly improved performance (in comparison with Excel & SSRS)
- ✓ Predictive visualizations with python based proven analytical data model
- ✓ Near Real-time data synchronization

* Functional coverage range varies based on the specific domain

Quick Wins - Industrial Insights Accelerator (IIA)



Insurance Sales Summary



Key Insights:

- ✓ Insurance KPIs like Total Policies, Total Clients who have purchased policies, Total Policy Amount and the Premium Paid Amount
- ✓ Tree Map charts for # Clients by Lead Channels and Sales Amount by Policy type.
- ✓ Stacked Column Chart with # Clients by Policies and Policy Types.
- ✓ Map represents Sales overview of US and Canada.
- ✓ Interactive filter selection at period, policy type, region level.

* Data in reports is only for illustration purposes.



Claim Management

Year

2021 2022

City

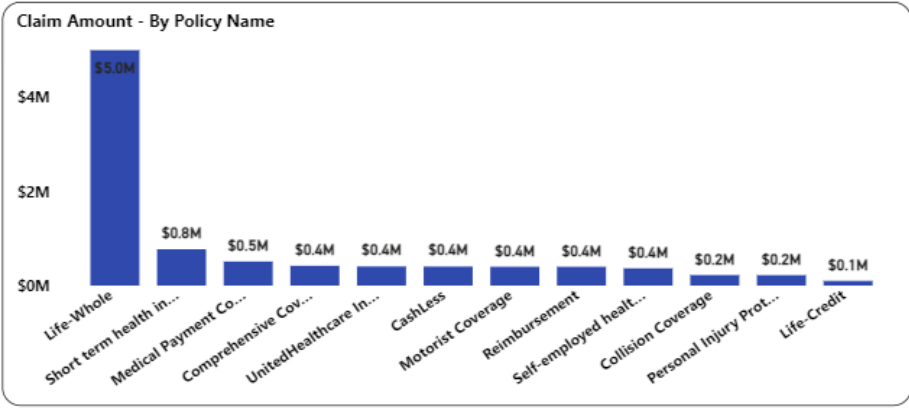
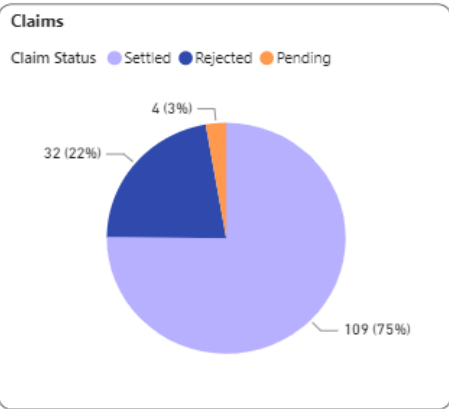
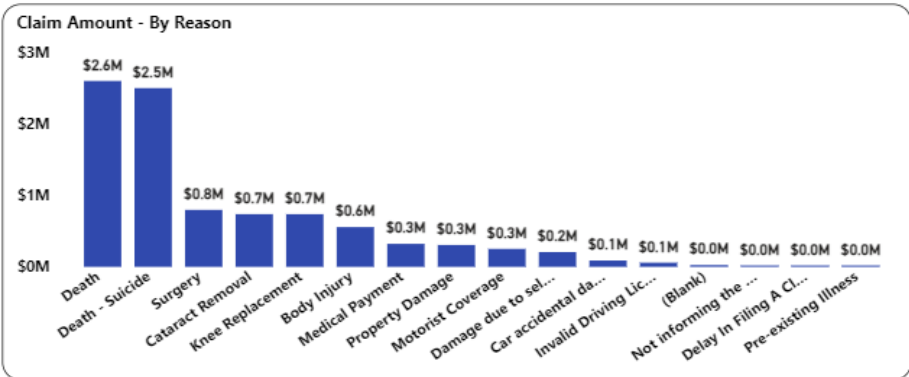
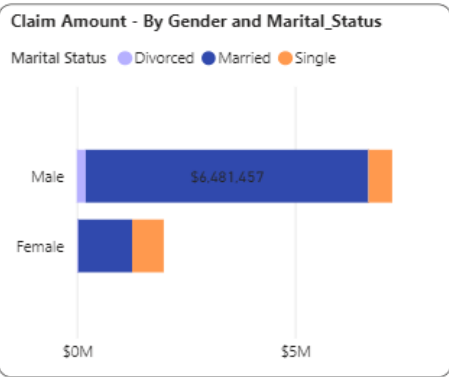
All

145
Claims

\$9.22M
Claim Amount

\$63.62K
Average Cost Per Claim

12
Claim Frequency - By Month



Insurance Claim Management

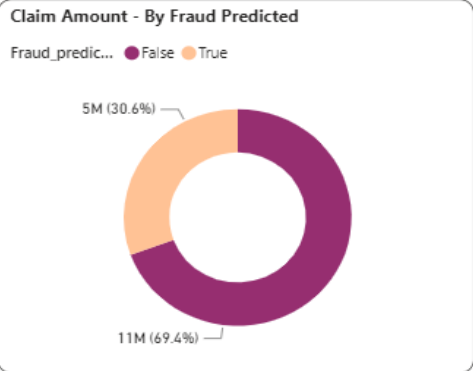
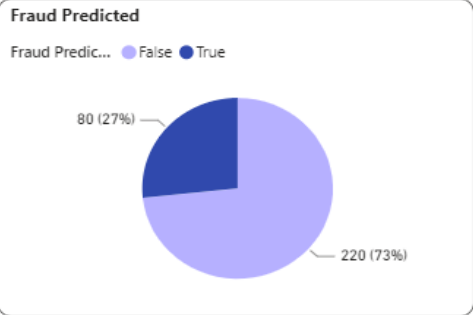
Key Insights:

- ✓ KPIs like Total Claims, Claim Amount. Insightful KPIs like Average Cost Per Claim and Claim Frequency by Month.
- ✓ Claim Amount by Gender and Marital Status, Reason and Policy Name shown in bar charts.
- ✓ Claims by Claim Status shown in Pie chart
- ✓ Interactive filter selection at period and region level.

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Fraudulence Claim

Summary

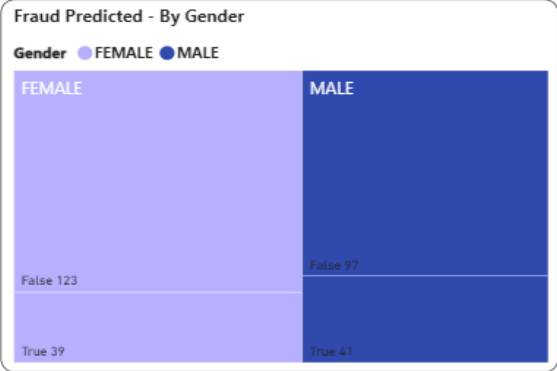
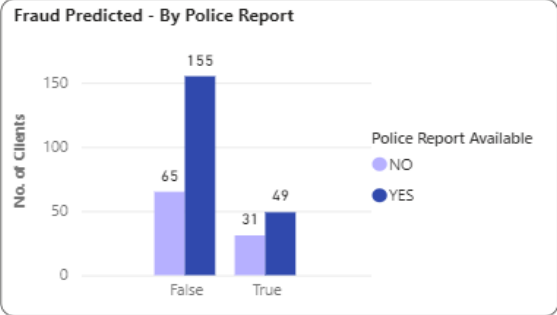
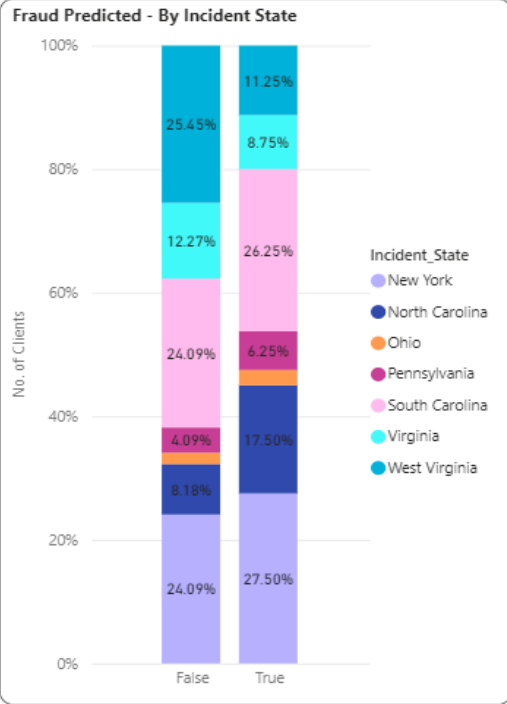


Accuracy

Precision

Recall

F1-Score



Insurance Fraudulence Claim - Summary

Key Insights:

- ✓ Ratio of Fraudulence predicted to occur(True) Vs predicted may not occur (False) is visualized in this report.
- ✓ Fraud predicted numbers and predicted by Claim Amount shown in Pie chart and Donut chart respectively.
- ✓ Fraud predicted by Incident State and Police report shown in Column charts. Tree Map shows the Fraud predicted by Gender.

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Fraudulence Claim - Model Performance - Accuracy

Summary

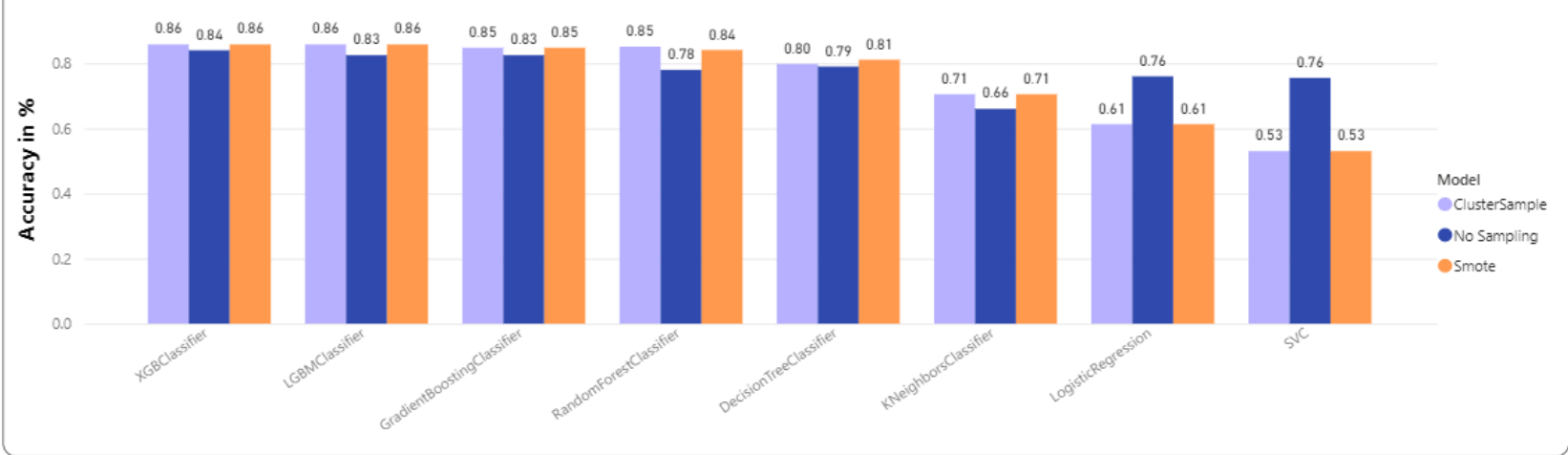
Accuracy

Precision

Recall

F1-Score

Accuracy by Description and Model



Accuracy is the ratio of correct predictions out of all predictions made by an algorithm

No Sampling had the highest average Accuracy at 77.94 %, followed by Smote at 75.80 % and ClusterSample at 75.76 %.

XGB Classifier Shows Higher Accuracy of 0.86%

Insurance Fraudulence Claim - Accuracy

Key Insights:

- ✓ Performance of various Models' ability to detect Fraud accurately..
- ✓ The clustered column chart compares the ability of different Data science models to accurately detect fraud for different Sampling techniques like Clustered Sampling, Smote and Without Sampling.
- ✓ The narrative gives insights of the algorithm performance.

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Fraudulence Claim - Model Performance - Precision

Summary

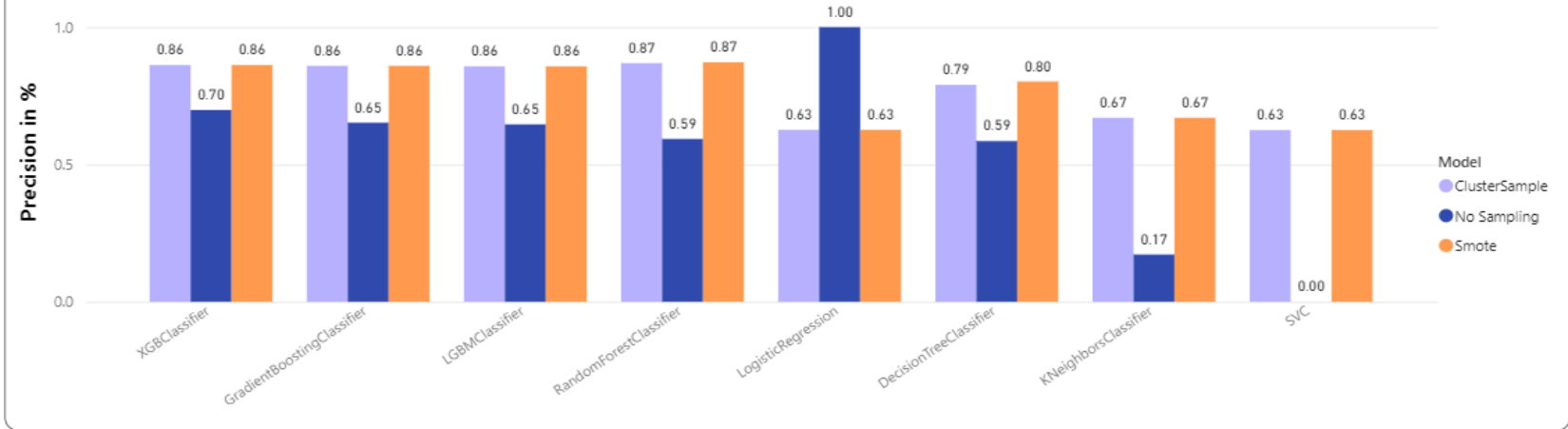
Accuracy

Precision

Recall

F1-Score

Precision by Description and Model



Precision is implied as the measure of the correctly identified positive cases from all the predicted positive cases. Thus, it is useful when the costs of False Positives are high.

Smote had the highest average Precision at 77.16 %, followed by ClusterSample at 76.98 % and No Sampling at 54.33 %.

XGB Classifier Shows Higher Precision of 0.86

Key Insights:

- ✓ Performance of various Models' ability to detect fraudulent cases precisely.
- ✓ The clustered column chart compares the ability of different Data science models to precisely detect fraudulent cases for different Sampling techniques like Clustered Sampling, Smote and Without Sampling.
- ✓ The narrative gives insights of the algorithm performance.

Insurance Fraudulence Claim - Precision

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Fraudulence Claim - Model Performance - Recall

Summary

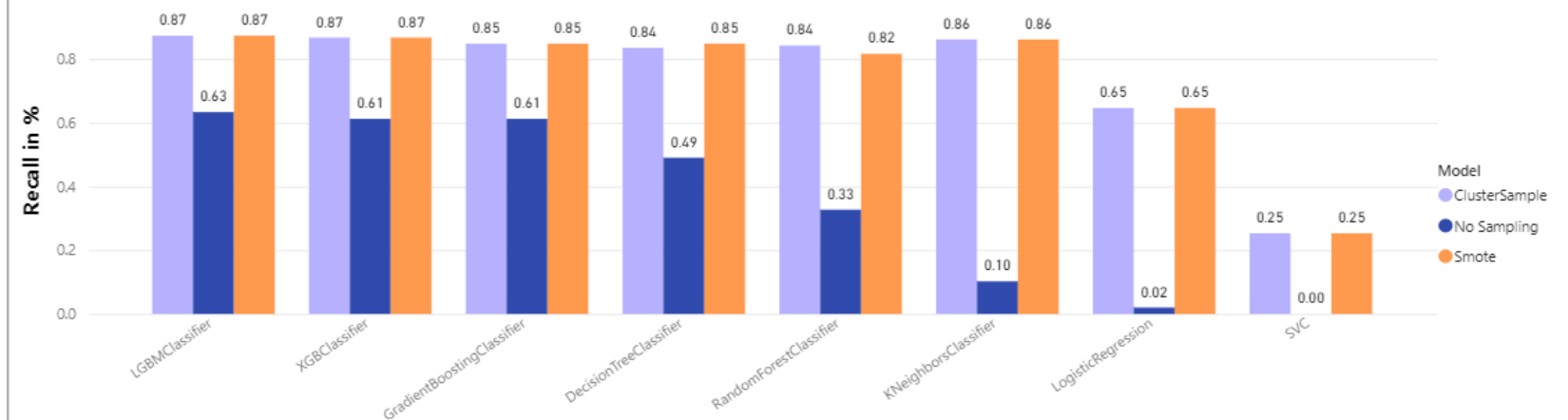
Accuracy

Precision

Recall

F1-Score

Recall by Description and Model



Recall is the measure of the correctly identified positive cases from all the actual positive cases. It is important when the cost of False Negatives is high.

ClusterSample had the highest average Recall at 75.31 %, followed by Smote at 75.15 % and No Sampling at 34.95 %.

LGBM Classifier has Highest Recall of 0.87%

Key Insights:

- ✓ Performance of various Models' ability to detect Fraud cases sensibly.
- ✓ The clustered column chart compares the ability of different Data science models to detect fraud cases sensibly for different Sampling techniques like Clustered Sampling, Smote and Without Sampling.
- ✓ The narrative gives insights of the algorithm performance.

Insurance Fraudulence Claim – Recall

Fraudulence Claim - Model Performance - F1 Score

Summary

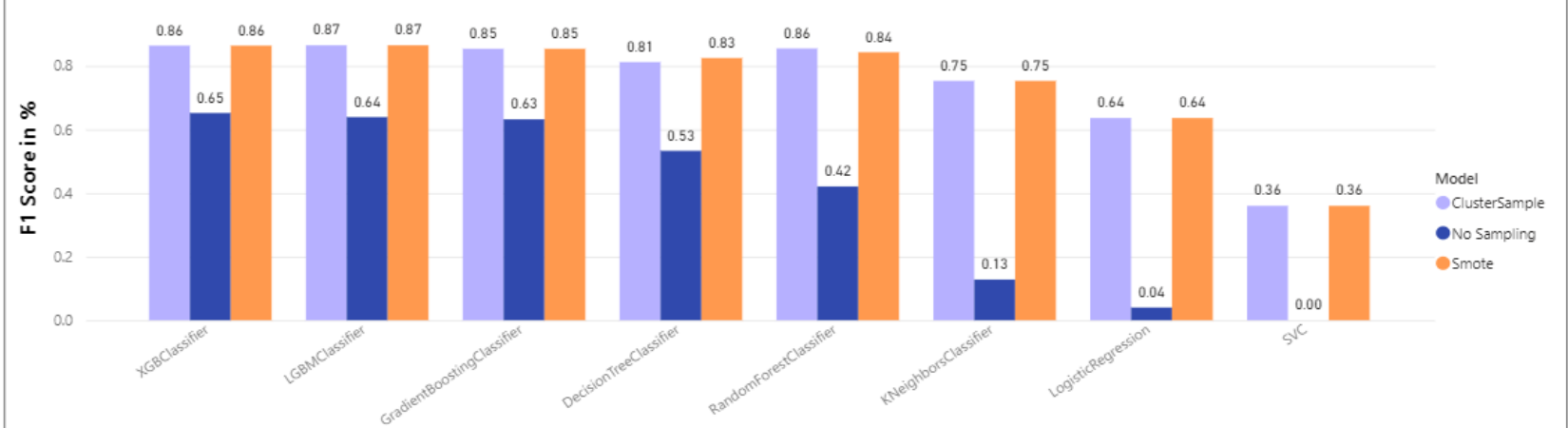
Accuracy

Precision

Recall

F1-Score

F1_Score by Description and Model



F1 score: this is the harmonic mean of precision and recall and gives a better measure of the incorrectly classified cases than the accuracy matrix.

Smote had the highest average F1_Score at 75.00 %, followed by ClusterSample at 74.99 % and No Sampling at 38.06 %.

Best Algorithm XGB Classifier among others since it has best accuracy(0.86%), Precision(0.86%), Recall (0.87%) , F1-Score (0.86%)

Key Insights:

- ✓ F1 Score give the Overall Model performance.
- ✓ In conclusion, the XGBClassifier model was able to accurately distinguish between fraudulent claims and legitimate claims.
- ✓ The narrative gives more insights.

Insurance Fraudulence Claim – F1-Score

Employee Performance

Year

Employee Name

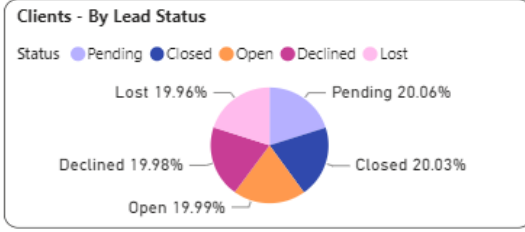
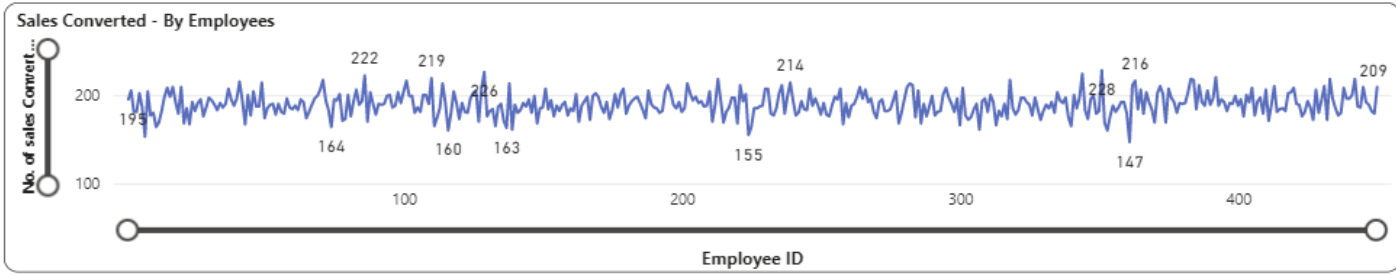
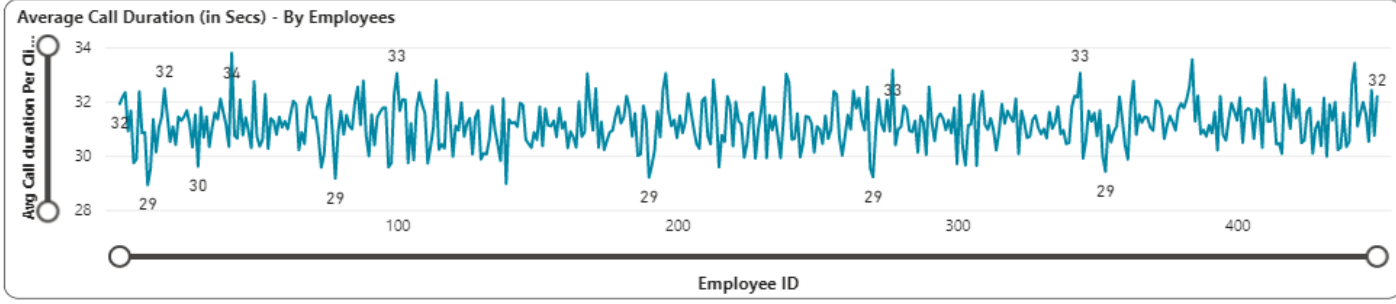
1M
 Calls

450
 Employees

999881
 Leads

80.03%
 Answered Ratio

8.54%
 Sales Ratio



At 33.78, 41 had the highest Average Call Duration Per Client and was 16.81% higher than 11, which had the lowest Average Call Duration Per Client at 28.92. Across all 450 EmployeeID, Average Call Duration Per Client ranged from 28.92 to 33.78. 351 accounted for 0.27% of Is_ConvertedSales.

Insurance Employee Performance

Key Insights:

- ✓ KPIs like Total Calls, Total employees and Leads. Insightful KPIs like Answered Ratio and Sales Ratio.
- ✓ Line charts showing Average Call duration in seconds, and Sales Converted by Employees
- ✓ #Clients by Lead Status in Pie chart.
- ✓ The Narration gives the summary of the employee performance.
- ✓ Interactive filter selection at period, employee level.

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Thank You!

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